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2013 CALGreen Non-Residential Mandatory Measures Checklist

This checklist applies to newly constructed buildings, building additions of 1,000 square feet or greater, and/or building alterations with a permit valuation of $200,000 or above. Code sections relevant to additions and alterations shall only apply to the portions of the building being added or altered within the scope of the permitted work.

Measures in this checklist apply to both newly constructed buildings and additions and alterations unless noted with the following banner:
[N] = Measures applicable to newly constructed buildings only
[AA] = Measures applicable to additions and alterations only

Feature or Measure	Required
PLANNING AND DESIGN	
Site Development 5.106	
Storm water pollution prevention. Newly constructed projects and additions which disturb less than one acre of land shall prevent the pollution of stormwater runoff from the construction activities through one or more of the following measures: 1. **Local ordinance**. Comply with a lawfully enacted stormwater management and/or erosion control ordinance. 2. **Best management practices (BMP)**. Prevent the loss of soil through wind or water erosion by implementing an effective combination of erosion and sediment control and good housekeeping BMP.	
Short-term bicycle parking. If the new project or an addition or alteration is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5% of new visitor motorized vehicle parking spaces being added, with a minimum of one two-bike capacity rack. **Exception:** 1. Additions or alterations which add nine or less visitor vehicular parking spaces.	
Long-term bicycle parking. For new buildings with over 10 tenant-occupants or for additions or alterations that add 10 or more tenant vehicular parking spaces, provide secure bicycle parking for 5% of the tenant vehicular parking spaces being added, with a minimum of one space.	
Designated parking. In new projects or additions of alterations that add 10 or more vehicular parking spaces, provide designated parking for any combination of low-emitting, fuel efficient, and carpool/van pool vehicles as shown on Table 5.106.5.2. **Parking stall marking.** Paint "CLEAN AIR/ VANPOOL/EV" with last word aligned with the end of the stall striping.	
Light pollution reduction. [N] Outdoor lighting systems shall be designed and installed to comply with the following: 1. The minimum requirements in the California Energy Code for Lighting Zones 1-4 as defined in Chapter 10 of the California Administrative Code; and 2. Backlight, Uplight and Glare (BUG) ratings as defined in IESNA TM-15-11; and 3. Allowable BUG ratings not exceeding those shown in Table 5.106.8, or Comply with local ordinance lawfully enacted pursuant to Section 101.7, whichever is more stringent. **Exception: [N]** 2. Luminaires that qualify as exceptions in Section 147 of the California Energy Code 3. Emergency lighting	

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Feature or Measure	Required
Grading and paving. Construction plans shall indicate how site grading or a drainage system will manage all surface water flows to keep water from entering buildings. **Exception:** 1. Additions and alterations not altering the drainage path.	
WATER EFFICIENCY AND CONSERVATION	
Indoor Water Use (5.303)	
Meters. Separate submeters or metering devices shall be installed for the uses described below:	
New buildings or additions in excess of 50,000 square feet. For each individual leased, rented, or other tenant space within the building projected to consume more than 100 gal/day, including, but not limited to, spaces used for laundry or cleaners, restaurant or food service, medical or dental office, laboratory, or beauty salon or barber shop	
New buildings or additions in excess of 50,000 square feet. For water supplied to the following subsystems, where separate submeters for individual building tenants are unfeasible: a) Makeup water for cooling towers where flow through is greater than 500 gpm b) Makeup water for evaporative coolers greater than 6gpm c) Steam and hot-water boilers with energy input more than 500,000 Btu/h	
Excess consumption. For any tenant within a new building or within an addition that is projected to consume more than 1,000 gal/day.	
Water Reduction. Plumbing fixtures shall meet the max. flow rate values shown in Table 5.303.2.3. **Exception:** 1. Buildings that demonstrate 20% overall water use reduction. A calculation demonstrating a 20% reduction in the building "water use baseline", as established in Table 5.303.2.2, shall be provided. **Areas of addition or alteration**. This provision applies to new fixtures in additions or areas of alteration to the building.	
Water conserving plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following:	
Water closets. The effective flush volume of all water closets shall not exceed 1.28 gpf. Tank-type water closets shall be certified to the performance criteria of the U.L. EPA WaterSense Specification for Tank-Type Toilets.	
Urinals. The effective flush volume of urinals shall not exceed 0.5 gpf.	
Single showerheads. Showerheads shall have a max. flow rate of not more than 2.0 gpm at 80 psi. Showerheads shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Showerheads.	
Multiple showerheads. When a shower is served by more than one showerhead, the combined flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 2.0 gallons per minute at 80 psi, or the shower shall be designed to allow only one shower outlet to be in operation at a time.	
Wastewater reduction. Each building shall reduce by 20% wastewater by one of the following methods: 1. The installation of water-conserving fixtures or 2. Utilizing non-potable water systems	
Outdoor Water Use (5.304)	
Water budget. A water budget shall be developed for landscape irrigation use.	

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Feature or Measure	Required
Outdoor potable water use. For new water service or for addition or alteration requiring upgraded water service for landscaped areas of at least 1000 square feet but not more than 5000 square feet, separate meters or submeters or metering devices shall be installed for outdoor potable water use	
Irrigation design. In new nonresidential construction or building addition or alteration with at least 1000 but not more than 2500 square feet of cumulative landscaped area, automatic irrigation systems controllers installed at the time of final inspection shall be weather-based or soil moisture-based that automatically adjust irrigation in response to changes in plants' needs as weather conditions change; or weather-based controllers without integral rain sensors shall have a separate wired or wireless rain sensor which connects with the controllers.	
MATERIAL CONSERVATION AND RESOURCE	
Water Resistance and Moisture Management (5.407)	
Weather protection. Provide a weather-resistant exterior wall and foundation envelope.	
Moisture control. Employ moisture control measures by the following methods:	
Sprinklers. Prevent irrigation spray on structures.	
Entries and openings. Design exterior entries and openings subject to foot traffic or wind-driven rain to prevent water intrusion into buildings as follows:	
Exterior door protection. Primary exterior entries shall be covered to prevent water intrusion by using non-absorbent floor and wall finishes within at least 2' around and perpendicular to such openings plus at least one of the following: 1. An installed awning at least 4' in depth. 2. The door is protected by a roof overhang at least 4' in depth. 3. The door is recessed at least 4'. 4. Other methods which provided equivalent protection.	
Flashing. Install flashings integrated with a drainage plane.	
Construction Waste Reduction, Disposal and Recycling (5.408)	
Construction waste management. A minimum of 50% of the non-hazardous construction and demolition waste generated at the site shall be diverted to recycle or salvaged. This is achieved by submitting a Waste Management Plan for approval by the Building and Safety Department prior to demolition permit issuance and providing documentation to demonstrate compliance with the Waste Management Plan after completion of demolition and/or prior to final inspection.	
Excavated soil and land clearing debris. 100% of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled.	
Building Maintenance and Operation (5.410)	
Recycling by occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage, and collection of non-hazardous materials for recycling.	
Additions. [A] All additions conducted within a 12-month period under single or multiple permits, resulting in an increase of 30% or more in floor area, shall provide recycling areas on site. **Exceptions:** Additions within a tenant space resulting in less than a 30% increase in the tenant space floor area.	
Commissioning. [N] For new buildings 10,000 square feet and over, building commissioning for all building operating systems covered by T24, Part 6, process equipment and controls, and renewable energy systems shall be included in the design and construction processes of the building project to verify they meet the owner's or owner representative's project requirements. Commissioning shall be performed by trained personnel with experience on projects of comparable size and complexity.	

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Feature or Measure	Required
Owner's Project Requirements (OPR). [N] The expectations and requirements of the building appropriate to its phase shall be documented before the design phase of the project begins.	
Basis of Design (BOD). [N] A written explanation of how the design of the building systems meets the OPR shall be completed at the design phase of the building project.	
Commissioning plan. [N] A commissioning plan describing how the project will be commissioned shall be completed prior to permit issuance	
Functional performance testing. [N] Functional performance tests shall demonstrate the correct installation and operation of each component, system, and system-to-system interface in accordance with the approved plans and specifications.	
Systems manual. [N] The Systems Manual, which includes documentation of the operational aspects of the building, shall be delivered to the building owner or representative and facilities operator.	
Systems operations training. [N] A program for training of the appropriate maintenance staff for each equipment type and/or system shall be developed and documented in the commissioning report.	
Commissioning report. [N] A report of commissioning process activities undertaken through the design and construction phases of the building project shall be completed and provided to the owner or representative.	
Testing and adjusting. Testing and adjusting of systems shall be required for new buildings less than 10,000 square feet or new systems to serve an addition or alteration subject to sec. 303.1.	
Systems. Develop a written plan of procedures for testing and adjusting systems.	
Procedures. Perform testing and adjusting procedures in accordance with manufacturer's specifications and applicable standards on each system.	
HVAC balancing. Before a new space-conditioning system serving a building or space is operated for normal use, the system should be balanced in accordance with the procedures defined by standards as listed in sec. 5.410.4.3.1.	
Reporting. After completion of testing, adjusting and balancing, provide a final report of testing signed by the individual responsible for performing these services.	
Operation and maintenance (O&M) manual. Provide the building owner with detailed operating and maintenance instructions and copies of guaranties/warranties for each system prior to final inspection.	
Inspections and reports. Include a copy of all inspection verifications and reports required by the enforcing agency.	
ENVIRONMENTAL QUALITY	
Fireplaces (5.503)	
Install only a direct-vent sealed-combustion gas or sealed wood-burning fireplace, or a sealed woodstove or pellet stove, and refer to residential requirements in California Energy Code, Title 24, Part 6, Subchapter 7, Section 150. Wood stves and pellet stoves shall comply with U.S. EPA Phase II emission limits where applicable.	
Pollutant Control (5.504)	
The permanent HVAC system shall only be used during construction if necessary to condition the building or areas of addition or alteration within the required temperature range for material and equipment installation. If the HVAC system is used during construction, use return air filters with a MERV of 8. Replace all filters immediately prior to occupancy, or if the building is occupied during alteration, at the conclusion of construction.	
Duct openings and other related air distribution component openings shall be covered during construction.	
Adhesives, sealants and caulks shall be compliant with VOC limits per sec. 5.504.4.1.	

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Feature or Measure	Required
Paints, stains and other coatings shall be compliant with VOC limits per sec. 5.504.4.3.	
Aerosol paints and coatings shall be compliant with Product-Weighted MIR limits for ROC, VOC and other toxic compounds limits per sec. 5.504.4.3.1.	
Carpet and carpet systems shall be compliant with the testing and product requirements per sec. 5.504.4.4, 504.4.4.1, 504.4.4.2.	
Hardwood plywood, particleboard and medium density fiberboard composite wood products used on the interior or exterior of the building shall meet the formaldehyde limits per sec. 5.504.4.5.	
For 80% of floor area receiving resilient flooring shall meet the requirements per sec. 5.504.4.6.	
Documentation shall be provided to the City building inspector verifying that compliant finish materials have been used.	
Filters. In mechanically ventilated buildings, provide regularly occupied areas of the building with air filtration media for outside and return air prior to occupancy that provides at least a MERV of 8. Recommendations for maintenance with filters of the same value shall be included in the operation and maintenance manual. **Exceptions:** 1. An ASHRAE 10% to 15% efficiency filter shall be permitted for an HVAC unit meeting 2013 California Energy Code having 60,000 Btu/h or less capacity per fan coil, if the energy use of the air delivery system is 0.4 W/cfm or less at design air flow. 2. Existing mechanical equipment.	
Labeling. Installed filters shall be clearly labeled by the manufacturer indicating the MERV rating.	
Environmental tobacco smoke (ETS) control. Where outdoor areas are provided for smoking, prohibit smoking within 25 feet of building entries, outdoor air intakes and operable windows and within buildings.	
Carbon dioxide (CO_2) monitoring. For buildings or additions equipped with demand control ventilation, CO_2 sensors and ventilation controls shall be specified and installed in accordance with 2010 California Energy Code sec. 121(c) prior to July 1, 2014 and 2013 California Energy Code sec. 120(c)(4) effective July 1, 2014.	
Environmental Comfort (5.507)	
Acoustical Control. Employ building assemblies and components with Sound Transmission Class (STC) values using one of the following methods:	
Prescriptive method - Exterior noise transmission. Wall and roof ceiling assemblies making up the building or addition envelope or altered envelope shall have a composite STC of min. 50, or a composite OITC rating of min. 40, with exterior windows of an STC of min. 40 or OITC of 30 in the following locations: 1. Within the 65 CNEL noise contour of an airport. 2. Within the 65 CNEL or L_{dn} noise contour of a freeway, railroad, industrial source or fixed-guideway source. Buildings exposed to a noise level of 65 dB L_{eq}-1-hr during any hour of operation shall have building, addition or alteration exterior wall and roof-ceiling assemblies of at least 45 composite STC rating (or OITC 35), with exterior windows of a min. STC of 40 (or OITC 30)	
Performance method. For buildings located as defined in sec. 5.507.4.1 or 5.507.4.1.1, wall and roof-ceiling assemblies making up the building or addition envelope or altered envelope shall be constructed to provide L_{eq}-1Hr of 50 dBA in occupied areas during any hour of operation. An acoustical analysis documenting compliance shall be provided.	

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Feature or Measure	Required
Interior sound transmission. Wall and floor-ceiling assemblies separating tenant spaces and tenant spaces and public places shall have a min. STC of 40.	
Outdoor Air Quality (5.508)	
Ozone depletion and greenhouse gas reductions. Installations of HVAC, refrigeration and fire suppression equipment shall not contain Chlorofluorocarbons (CFCs) and Halons.	
Supermarket refrigerant leak reduction. New commercial refrigeration systems (including bothe new facilities and the replacemet of existing refrigeration systems in existing facilities) installed in retail food stores 8,000 square feet or more conditioned area, and that utilize either refrigerated display cases, or walk-in coolers or freezers connected to remote compressor units or condensing units and contain high-global-warming potential (High-GWP) refrigerants with a GWP of 150 or greater, shall comply with the following:	
Refrigerant piping. Piping shall be installed to be accessible for leak protection and repairs. Piping runs using threaded pipe, copper tubing with an outside diameter (OD) less than ¼", flaredtubing connections and short radius elbows shall not be used in refrigerant systems except as noted in sec. 5.508.2.1.1, 5.508.2.1.2, 5.508.2.1.3, 5.508.2.1.4.	
Valves. Valves and fittings shall comply with the requirements in sec. 5.508.2.2.	
Refrigerated service cases. Refrigerated service cases holding food products containing vinegar and salt shall have evaporator coils of corrosion-resistant material, or be coated to prevent corrosion from these substances. Consideration shall be given to the heat transfer efficiency of coil coating to maximize energy efficiency.	
Refrigerant receivers. Refrigerant receivers with capacities greater than 200 pounds shall be fitted with a device that indicates the level of refrigerant in the receiver.	
Pressure testing. The system shall be pressure tested during installation prior to evacuation and charging per sec. 5.508.2.5.	
Evacuation. The system shall be evacuated after pressure testing and prior to charging per sec. 5.508.2.6.	
INSTALLER AND SPECIAL INSPECTOR QUALIFICATIONS	
Qualifications (702)	
HVAC system installers are trained and certified in the proper installation of HVAC systems.	
Special inspectors employed by the owner or owner's agent shall demonstrate competence for the particular type of inspection to be performed and shall have a certification from a recognized state, national or international association in the area closely related to the primary job function.	
Verifications (703)	
Verification of compliance with this code may include construction documents, plans specifications, builder or installer certification, inspection reports, or other methods acceptable to the enforcing agency, which show substantial conformance.	